Qty:

1 Um:

Each

Wednesday, 4/4/2007 8:59:27 AM

Use

Kim Johnston

Process Sheet

Part Number

Material

Due Date

Description:

Drawing Number

Project Number

Drawing Revision

Drawing Name : X-TUBE 412

: D412664245

: N/A

: U/R

:NIA

: 4/30/2007

· D412-664-245 U/R

Customer

: CU-DAR001 Dart Helicopters Services

Job Number **Estimate Number**

: 31598 : 12727

P O Number

This Issue

Previous Run

AIU: : 4/4/2007

S.O. No. : NIA

: NC Prsht Rev. First Issue

: MA : 31597

Type

: LANDING GEAR

Checked & Approved By Comment

Written By

New Issue 07-02-14 JLM : Est Rev:AC

Additional Product

Job Number:

Seq. #:

1.0

Machine Or Operation:

D6009129

Crosstube Material

Comment: Qtv.:

1.0000 Each(s)/Unit

Total:

1,0000 Each(s)

Pick:

Qty Part number Description Batch 1 D6009-129 Crosstube BU39UI

Check OD = 3.500"; ID = 2.250"

DOCUMENT CONTROL

Comment: DOCUMENT CONTROL

Photocopy bluefile & type labels per PPPD412-664-205

CHG001

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

Turn as per Dwg D412-664-245

INSPECT PARTS AS THEY COME OFF MACHINE

Comment: INSPECT PARTS AS THEY COME OFF MACHINE

5.0

QC8

SECOND CHECK

Comment: SECOND CHECK

Page 1

Form: rorocess

W/O:			~?	WORK ORDER CHAN	IGES				
DATE	STEP		4	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspector
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Part No		u .	PAR #:	Fault Category:	NCR: Ye	s No DC		Date:) #

			-		QA: N/C	Closed:	Date: _	(
NCR:			WORK ORDER NON-CONFORMANCE (NCR)								
		Description of NC	A.	Corrective Action Section B	* 5	Verification	Approval	Approval			
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Date: • Wednesday, 4/4/2007 8:59:27 AM User: ' Kim Johnston **Process Sheet** Customer CU-DAR001 Dart Helicopters Services Drawing Name: X-TUBE 412 Job Number: 31598 Part Number: D412664245 Job Number: Description: Seq. #: Machine Or Operation: LANDING GEAR RESOURCE 1 LANDING GEAR 1 Comment: LANDING GEAR RESOURCE 1 Jb7-4-19 1-Polish entire outside surface of crosstube INSPECT WORK TO CURRENT STEP 7.0 QC5 Comment: INSPECT WORK TO CURRENT STEP HAND FINISHING RESOURCE #1 8.0 Comment: HAND FINISHING RESOURCE #1 Chemical Conversion Coat as per QSI 005 4.1 INSPECT WORK/WING WALK 9.0 QC3/5 Comment: Inspect work & Chemical conversion Coat 10.0 BENDING Comment: BENDING MACHINE Bend tube as per Dwg D412-664-243 using CNC bender program 412-af and Folio FT010 QC6 11.0 045 Comment: DIMENSIONAL CHECK D36061 CUFF Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s) **CUFF** 31474 Batch: LANDING GEAR LANDING GEAR RESOURCE 1 Comment: LANDING GEAR RESOURCE 1 1-Drill Rivet holes as per Dwg D412-664-245 RT 07-05-02 - 2-Drill pilot holes in tube as per Dwg D412-664-245 3-Ream hole to finish size in tube as per Dwg D412-664-245

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Form: rorocess

Page 2

W/O:	:			WORK	ORDER C	HANGES					
DATE	STEP	PROCEDURE CHANGE By			Ву	Date	Date Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector		
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Part No	:		PAR #:	Fault Category:			₹: Yes	No DQ	A :	Date:	

QA: N/C Closed: _____

Date:

NCR:		WORK ORDER NON-CONFORMANCE (NCR)								
		Description of NC .		Corrective Action Section B			Approval			
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Chief Eng	Approval QC Inspector		
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Wednesday, 4/4/2007 8:59:27 AM Date: • User:" Kim Johnston **Process Sheet** Drawing Name: X-TUBE 412 Customer: CU-DAR001 Dart Helicopters Services Job Number: 31598 Part Number: D412664245 Job Number: Description: Seq. #: Machine Or Operation: 367-4-24 4-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D412-664-245 HAND FINISHING RESOURCE #1 _14.0 HAND FINISHING 12 Comment: HAND FINISHING RESOURCE #1 Jb 7-4-24 Chemical Conversion Coat Tube & Cuffs as per QSI 005-41 R COAT/CHEMICAL CONVERSION 13 COAT/CHEMICAL CONVERSION INSPECT WORK FOR URRENT STEP 16.0 Comment: INSPECT WORK TO CURRENT STEP **OUTSIDE SERVICES -LG** Comment: Sub-Contracting OUTSIDE SERVICES Issue P/O: 3644 LPI as per ASTM 1417 CLO 7/04/26 (1) Level 2 Attach copy of NDT results to work order PACKAGING RESOURCE #1 18.07 16 Comment: PACKAGING RESOURCE #1 Inspect for transit damage Ensure copy of NDT results attached to work order. QC5 Comment: Inspect for damage & ensure results are as per Dwg D412-664-203 LANDING GEAR RESOURCE 1 20.0 Comment: LANDING GEAR RESOURCE 1 1-Rivet Cuffs as per Dwg D412-6647-245. with Sika flex in Between tube & Cuff SIKAFLEX -241/-291 BATCH: MO3561

W/O:		WORK ORDER CHANGES									
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mar	Approval QC Inspector				
posor	[7.0°	Tube Accepted as A PASS. No NOT results were received back from Heath Air. continue - clo not pass step 30.0.	1	A0205		Posor	โดงร.x				
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Part No:		PAR #: Fault Category: N		No DQA		Date:					

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DATE	STEP	Section A	Initial Chief Eng	Action Description / Chief Eng	Sign & Date	Section C	Approval Chief Eng	Approval QC Inspector				
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Wednesday, 4/4/2007 8:59:27 AM Date: • User:" Kim Johnston **Process Sheet** Customer: CU-DAR001 Dart Helicopters Services Drawing Name: X-TUBE 412 Job Number: 31598 Part Number: D412664245 Job Number: Description: Seq. #: **Machine Or Operation:** CHERRY RIVET 21.0 44.0000 Each(s) Comment: Qty.: 44.0000 Each(s)/Unit Total: **CHERRY RIVET** 07-05-02 M104071 Batch: 22.0 Comment: SPRAY PAINTING 1-Prime inside and outside crosstube as per QSI 005 4.2 01 05-02 25 2-Paint outside crosstube with White Imron as per QSI 005 4.2 IMSPECT SPRAY PAINT 23.0 QC14 Comment: Inspect Spray Paint Wrap in plastic bag to protect from scratches Chafing Shield 24.0 2.0000 Each(s)/Unit a Total: 2.0000 Each(s) Comment: Qtv.: Chafing Shield 05 03 67 D3595 Rubber Cushion (per sq ft) 0.0536 sf(s)/Unit Total: 0.0536 sf(s)Comment: Qty.: Rubber Cushion Cut to .630" X 5.8" X 2PCS 05 Batch: 26.0 D28961 Comment: Qty.: 1.0000 Each(s) 1.0000 Each(s)/Unit Total: Pick: Description Batch 27266 at 07-04-04 Qty Part number 1 D2896-1

W/O:		WORK ORDER CH	ANGES			
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mar
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Part No	o:	PAR #: Fault Category:	NCR: Yes	No DQ A	\ :	Date:

QA: N/C Closed: _____ Date: ____

NCR:		. 1	WORK ORDER NON-CONFORMANCE (NCR)									
		Description of NC		Corrective Action Section B			Approval					
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Approval Chief Eng	Approval QC Inspecto				
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Date: • Wednesday, 4/4/2007 8:59:27 AM User: Kim Johnston **Process Sheet** Drawing Name: X-TUBE 412 Customer: CU-DAR001 Dart Helicopters Services Part Number: D412664245 Job Number: 31598 Job Number: Description: Seq. #: Machine Or Operation: D2856600 Abrasion Strip 27.0 0.9450 f(s) Comment: Qty.: Total: Abrasion Strip 2 X D2856-600-1009 RT 07 - 05 - 09 Clamp(per MIL-DTL-8783C) Batch: MS2192028 28.0 4.0000 Each(s) Comment: Qty.: 4.0000 Each(s)/Unit Total: Pick: Description Batch Qty Part number Clamp ___ 27 07-0704 4 MS21920-28 clamp(per MIL-DTL-8783C) 29.0 MS2192032 Comment: Qty.: 2.0000 Each(s)/Unit Total: 2.0000 Each(s) clamp(per MIL-DTL-8783C) 1070904 batch: (02931 Comment: LANDING GEAR RESOURCE 1 Assemble as per Dwg D412-664-245 Install Chaffing Sheilds Instal support with magnobond 6398 per dwg D412-664-245, \$1 070503 cure for 12hrs before packaging. Time & date of application: \(\frac{\sqrt{7} \infty}{2} \) Batch: M 1036 28 INSPECT WORK TO CURRENT STEP QC5 31.0 Comment: INSPECT WORK TO CURRENT STEP PACKAGING 1 PACKAGING RESOURCE #1 32.0 Comment: PACKAGING RESOURCE #1 Identify and pack for shipping as per PPP D412-664-205

W/O:		WORK ORDER CH	ANGES				WORK ORDER CHANGES							
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector							

			QA: N/C Closed:	Date:
Part No:	PAR #:	Fault Category:	NCR: Yes (No) DQA:	Date: 07/0/5/0

NCR:	NCR: WORK ORDER NON-CONFORMANCE (NCR)							
		Description of NC		Corrective Action Section E	3	Verification	Approval	Ammassal
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Section C	Chief Eng	Approval QC Inspector
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Wednesday, 4/4/2007 8:59:27 AM Date: -User:" Kim Johnston **Process Sheet** Drawing Name: X-TUBE 412 Customer: CU-DAR001 Dart Helicopters Services Job Number: 31598 Part Number: D412664245 Job Number: Description: Seq. #: **Machine Or Operation:** ******Ensure tube is not packaged if curing time is less than 12 hrs, see step 27 for application time & date **POSITIVE RECALL** Time & date of packaging: Location: PPP Rev: 33.0 Comment: FINAL INSPECTION/W/O RELEASE J. 07.05.04 Job Completion

W/O:		WORK ORDER CH	IANGES		,		
DATE	STEP	PROCEDURE CHANGE	Ву	Date	Qty	Approval Chief Eng / Prod Mgr	Approva QC Inspector
		·					
Part No		PAR #: Fault Category:	NCR: Yes	No DQ	A:	_ Date: _	
			QA:	N/C Close	d:	_ Date: _	

NCR:		WORK ORDER NON-CONFORMANCE (NCR)								
		Description of NC	Corrective Action Section B				cation Approval			
DATE	STEP	Section A	Initial Chief Eng	Action Description Chief Eng	Sign & Date	Verification Section C	Chief Eng	Approval QC Inspector		
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	DESIG	P	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
:	CHECK	ED 11	APPROVED //	DRAWING NO. REV. B
				D412-664-245 SHEET 1 OF 3
	DATE			TITLE SCALE
	07.0	3.01		CROSSTUBE ASS'Y (412 LOW-N AFT) NTS
	Α		06.12.01	NEW ISSUE
	R		07.03.01	CHG CUFF AREA. CHG RUBBER CUSHION

PRELIMINARY 158UE

PARTS LIST:

Qty	Part Number	Description
		A DOCUMENT ASSEMBLY (AGE OWN MADEOW AFT)
X	D412-664-245	CROSSTUBE ASSEMBLY (412 LOW-NARROW AFT)
1	D6009-129	CROSSTUBE
2	D2856-600-1009	ABRASION STRIP
1	D2896-1	SUPPORT
2	D3189-1	CHAFING SHIELD
2	D3595-063-580	RUBBER CUSHION
2	D3606-1	CUFF
44	CR3212-4-06	RIVET (OR M7885/3-4-06)
4	MS21920-28	CLAMP
2	MS21920-32	CLAMP
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE
AIN	MAGNOBOND 0550	(TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2
		ADHESIVE)
A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- MATERIAL: MANUFACTURED FROM D6009-129

FINISHED LENGTH = 123.59±0.020 (BEFORE BENDING/TRIMMING)

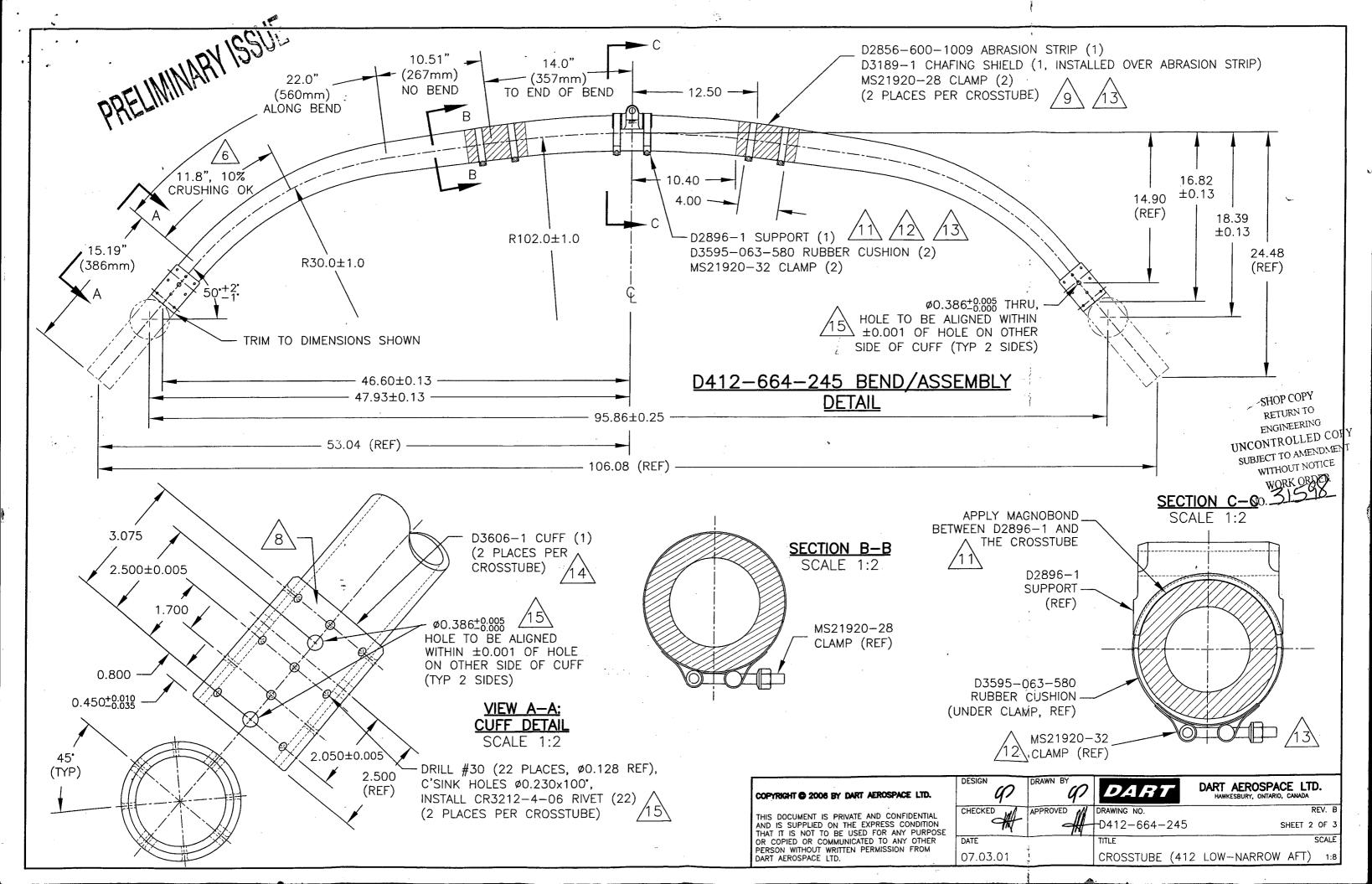
- FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2 PAINT OUTSIDE PER DART 005 4.2
- PART IS SYMMETRIC ABOUT CENTERLINE.
- RUN-OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH
- BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- INSTALL D2856-600-1009 ABRASION STRIP WITH A 0.13 (REF) GAP ON BOTTOM SIDE OF CROSSTUBE PER QSI 035.
- 10) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 11) APPLY A 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2896-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE. LET CURE FOR 12 HOURS AFTER SHOP COPY INSTALLATION AND PRIOR TO PACKAGING.
- 12) INSTALL MS21920-32 CLAMPS WITH D3595-063-580 RUBBER CUSHIONS TO SECURE D2896FTURN TO SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE CROSSTUBENEERING UNCONTROLLED COPY SUPPORT
- 13) TORQUE CLAMPS 80 TO 100 IN-LB.

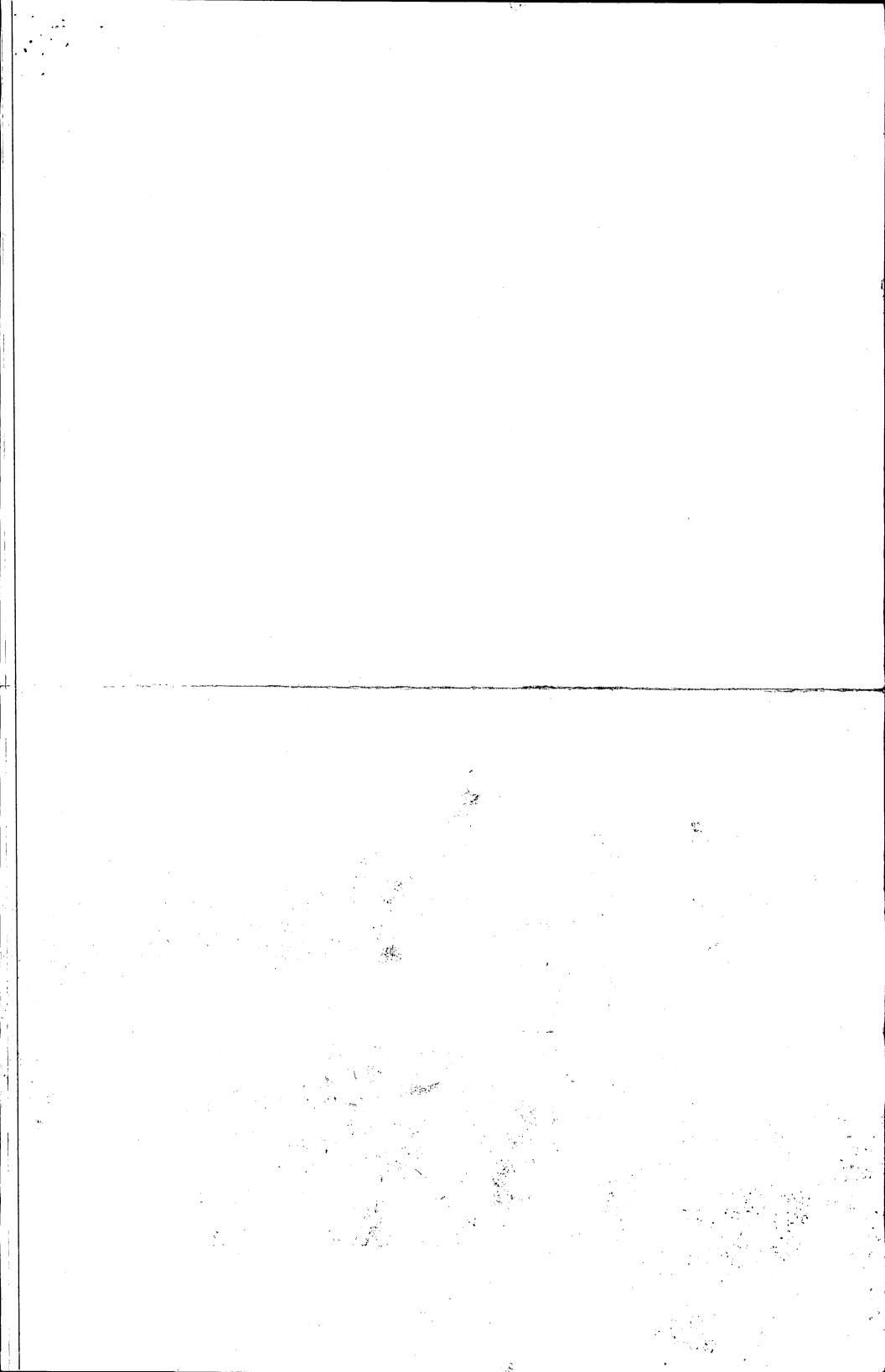
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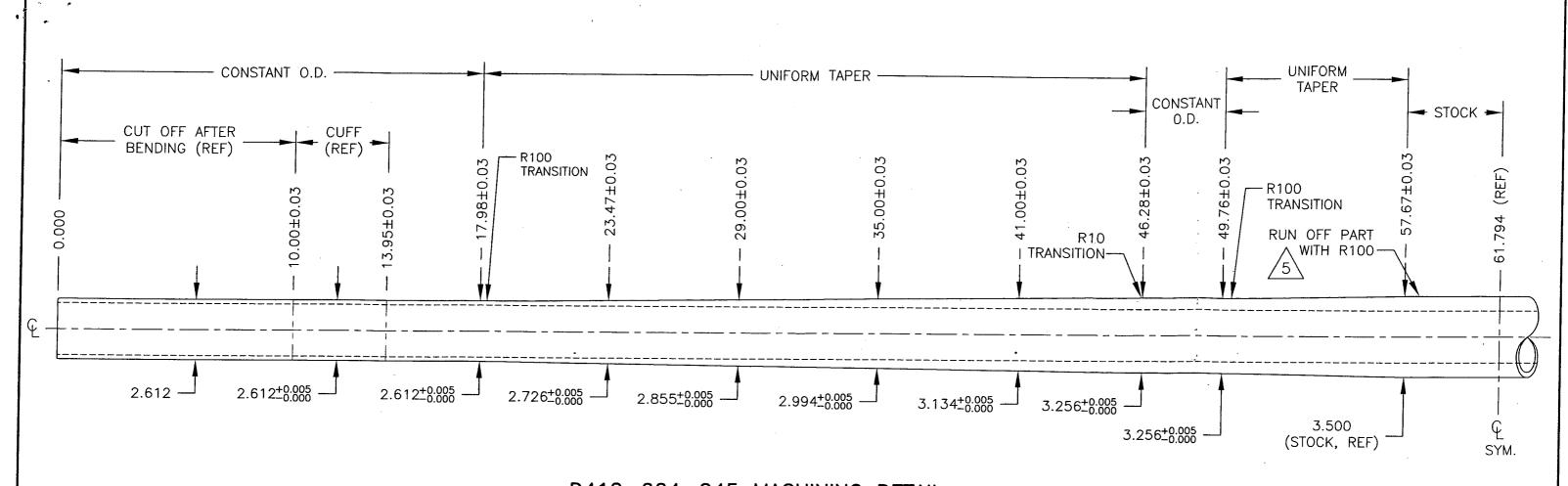
14) INSTALL D3606-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITHOUT TO AMENDMENT
LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN NOTICE
CUFF AND CROSSTUBE.

15) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

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PRELIMINARY ISSUE

D412-664-245 MACHINING DETAIL

SHOP COPY RETURN TO ENGINEERING UNCONTROLLED COPY SUBJECT TO AMENDMENT WITHOUT NOTICE

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CHECKED DATE DATE

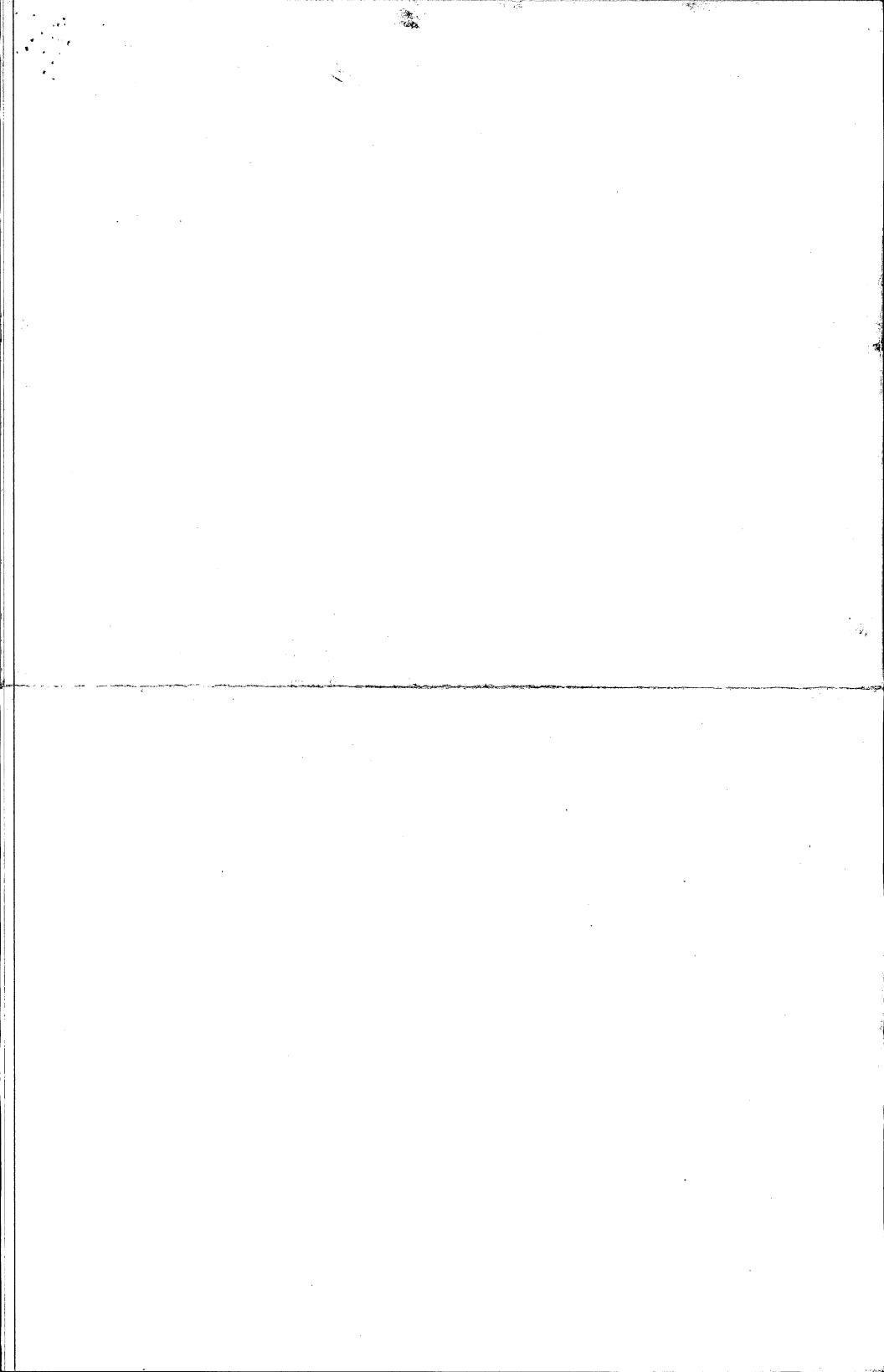
07.03.01

DART AEROSPACE LTD.
HAWKESBURY, ONTARIO, CANADA DART

D412-664-245 SHEET 3 OF 3

CROSSTUBE (412 LOW-NARROW AFT)

PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



DART AEROSPACE LTD	Work Order: 3/5৭৪
Description: IX-Tube 4/2	Part Number: 0412641245
Inspection Dwg [] HAU Rev: 15	Page 1 of 1

FIRST-ARTICLE INSPECTION CHECKLIST

		First Artic	cle	Proto	otype	
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
2.612	+,005	2.616	/			
2.612	21	2.616	/			
2.726	U	2.730	V			
2.855	()	2.860				
2.994	Į)	2.988	<u> </u>			·····
3.134	ν	3.138	1			
3.256	U	3.260				
3.256	'/	3.260	<u> </u>			
2.612	+.005	2.616	/			
2-612	4	2-616	J			
2,726	N/	2.730	/			
2,45	V	2-85-9	/			
2.894	11	2.898	/			
3.134	11	3.138	/			
3.256	и	3,260	~			
3.256	4	3,260	/			<u></u>
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123.5 90	2.030	123.588				
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Measured by:	Audited by:	and	Prototype Approval:	
Date: 07/04/18	Date:	07/04/19	Date:	

Rev	Date	Change	Revised by	Approved
Α		New Issue	KJ/JLM	

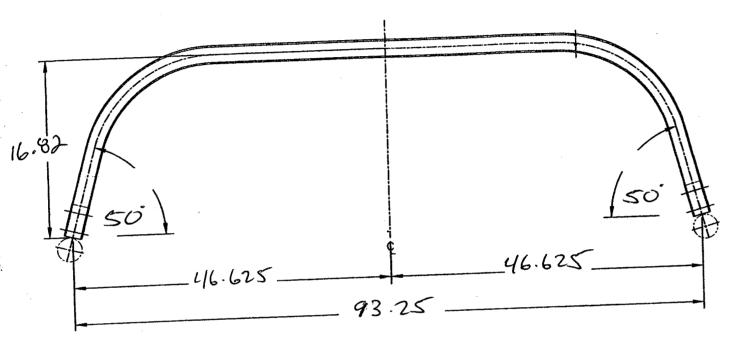
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,	Work Order: 31598
DART AEROSPACE LTD	
Description: Crosstube Low Narrow Aft (412)	Part Number: D412-664-245
	Page 1 of 1
Increation Dwg: D412-664-245 Rev: B	

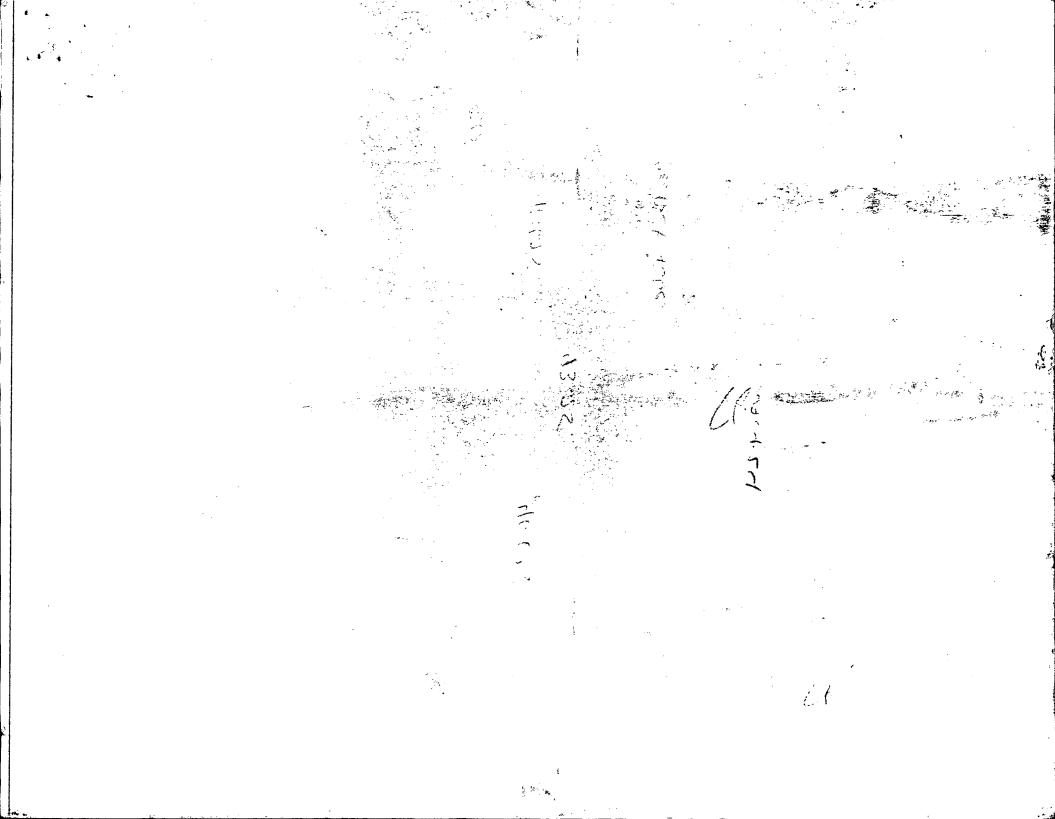
	Min	Max
Required Dimension	16.69	16.95
Height	46.47	46.73
1/2 Span	49°	52°
Angle	92.94	93.46
Total Span	92.94	





	Comments
perfect tube.	
QC15 Inspection Date	0704.24

		Revised by	Approved
Rev	Date	Change KJ/JM	
Α	07.03.29	New Issue	





HeathAir

NTERNATIONAL (1991) INC.

681 Ave. Lepine, Dorval, Québec H9P 1G3 Tél.: (514) 636-1000 * Fax: (514) 636-0031 **w.o.** № 36257

A.M.Q. Number: 46/90

NON-DESTRUCTIVE TESTING REPORT

AIRGRAFT//GOMPONENT/INFORMATION					
REGISTRATION:	MODEL/TYPE:	*	SERIAL NO	UMBER:	
TOTAL HR/LDG:	OPERATED BY:		BA	SED AT:	
INSPECTION REQUIREMENTS					
Carry out FPI of (13) cross to file at client) - parts delivered Qty (1) P/N D058-676-101 Qty (1) P/N D206-667-203 Qty (2) P/N D412-664-245 Qty (2) P/N D412-664-145 Qty (4) P/N D206-667-101	I to HeathAir. S/N B30250. S/N B29635. S/N's B31600 and B: S/N's B31434 and B:	Qty(2) 1 Qty(1) 1 31598. 31152.	P/N D206-667-103 P/N D206-667-201	S/N's B30429 a	
RADIOGRAPHY	ULTRASONIC	PENETRANT	MAGNETIC	PARTICLE	EDDY CURREN
Fluorescent penetrant inspection was performed in accordance with the above requirements on (13) cross tubes. Note: A Level 3 penetrant was substituted for the requested Level 2 (3 is more sensitive) Ardrox 970P25E Batch #04B503. (13) cross tubes inspected. (10) PASSED / (3) FAILED. Note: Failed items were serial numbers from above - B30250, B28680 and B29101. - tubes were marked in areas requiring rework.					
THE MAINTENANCE DE THE /	ESCRIBED ABOVE HAS BEEN PER APPLICABLE STANDARDS DE AIR	FORMED IN ACCORDANCE	WITH	INSPECTION STAMPIS)	27, 2007.
CUSTOMER: Dart Aerospace Address: fax to 613-632	-1053	OMERINEORI	VATION :	P.U. NUMBER	00003644 nda Lacelle
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MATERIALS Ø		THE RESERVE OF THE PERSON OF T		A CONTRACTOR OF THE CONTRACTOR	old .
TRAVEL EXPENSES @				GST	
MOTEL EXPENSES			V. W. 1917/0	PST	

